

## Claims

1. A laser multiplexing comprising a compound lens comprising at least two focusing elements arranged to focus at least two respective laser beams to a focal point on a common workpiece.  
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2. An element as claimed in claim 1 in which the compound lens comprises an array of lenses.

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3. A laser including an element as claimed in claim 1 or claim 2.
4. A method of multiplexing laser beams comprising temporally interleaving at least two pulsed laser beams such that said beams are multiplexed  
15 independent of their state of polarisation.
5. A method as claimed in claim 4 in which at least two laser beams are spatially separated and in which a variable deviation element focuses the laser beams onto a common target area on a workpiece.

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6. A method as claimed in claim 4 or claim 5 in which the variable deviation element is moveable so as to focus the temporally interleaved beams onto the common target area on a workpiece.
- 25 7. A method of multiplexing laser beams comprising the steps in any order, of spatially multiplexing laser pulses onto a common workpiece and temporally interleaving at least, some of the spatially multiplexed pulses.

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8. A method as claimed in claim 7 further comprising temporally overlapping at least some of the pulses.
9. A laser multiplexing apparatus comprising at least two pulsed laser sources for generating pulsed laser beams and a temporal multiplexing element arranged to temporally interleave at least two pulsed laser beams.  
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10. An apparatus as claimed in claim 9 in which the temporal multiplexing element comprises a variable deviation element.  
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11. An apparatus as claimed in claim 10 in which the variable deviation element comprises a moveable reflector or wedge.  
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12. An apparatus as claimed in claim 10 in which the variable deviation element comprises a moveable refractor.  
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13. An apparatus as claimed in claim 10 in which the variable deviation element comprises a moveable diffractive element.  
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14. An apparatus as claimed in claim 10 in which the variable deviation element has a number of reflective surfaces being an integer number of the number of laser sources being multiplexed.  
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15. An apparatus as claimed in any of claims 9 to 14 further comprising a laser multiplexing element as claimed in any of claims 1 to 3.
16. A high power laser produced plasma generation apparatus comprising a laser as claimed in any of claims 1 to 3 and/or an apparatus as claimed in any of claims 9 to 14.

17. A laser plasma production apparatus comprising a laser as claimed in any of claims 1 to 3 or a laser apparatus as claimed in any of claims 9 to 14.
- 5      18. A method of multiplexing laser beams comprising the steps of directing pulsed laser light from two or more independent lasers onto a movable deviation element and moving said element at a rate such that deviation of a laser pulse between lead and trailing edge is minimised.
- 10     19. A laser multiplexing assembly comprising a beam shaping element in which the beam shaping element is arranged to direct a first laser beam along an axis common with a second laser beam axis onto a common focusing element arranged about said common axis.
- 15     20. An assembly as claimed in claim 19 in which the beam shaping element is arranged to spatially separate the first and second beams.
- 20     21. An assembly as claimed in claim 19 or 20 in which the beam shaping element is formed of a lens.
- 25     22. An assembly as claimed in claim 21 in which the lens is an axicon lens.
23. A method of multiplexing laser beams comprising the steps of directing a first laser beam along an axis common with a second laser beam axis onto a common focusing element arranged about said common axis.